

Appln No. 10/672,187  
Amdt date August 20, 2004  
Reply to Office action of May 20, 2004

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Cancelled)
2. (Currently Amended) The method of claim [[1]] 5, wherein  $S_i$  indicates whether  $X$  is a positive or negative number, and wherein  $X$  being a the occurrence of positive numbers and negative numbers in a plurality of the datum,  $X$ , is substantially equiprobable to  $X$  being a negative number.
3. (Cancelled)
4. (Currently Amended) The computer program product of claim [[3]] 11, wherein  $S_i$  indicates whether  $X$  is a positive or a negative number, and wherein  $X$  being a the occurrence of positive numbers and negative numbers in a plurality of the datum,  $X$ , is substantially equiprobable to  $X$  being a negative number.
5. (New) A method for rounding a first two's complement fixed point datum  $X$  represented by a sign bit  $s_1$ ,  $n$  first integer bits, and  $a$  first fractional bits, where  $X$  includes a precision portion including at least the  $n$  first integer bits and  $b$  first fractional bits, and a loss portion including  $(a-b)$  first fractional bits, the method comprising:

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comparing at least a portion of the **a** first fractional bits with a preselected threshold value;

if the comparison returns a first result, adding the sign bit **s<sub>i</sub>** to the least significant bit of the precision portion of **X**;

if the comparison returns a second result, adding the most significant bit of the loss portion of **X** to the least significant bit of the precision portion of **X**; and

returning  $\hat{X}$  based on the addition calculation, wherein  $\hat{X}$  includes at least **n** second integer bits and **b** second fractional bits.

6. (New) The method of claim 5, wherein  $\hat{X}$  further includes a sign bit **s<sub>o</sub>**.

7. (New) The method of claim 5, wherein the comparing includes comparing the loss portion of **X** with the preselected threshold value.

8. (New) The method of claim 7, wherein the comparison returns the first result if the most significant bit of the loss portion has a value of "1" and any subsequent bits of the loss portion has a value of "0."

9. (New) The method of claim 5, wherein the first result indicates that the compared first fractional bits equal the threshold value.

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10. (New) The method of claim 5, wherein the second result indicates that the compared first fractional bits do not equal the threshold value.

11. (New) A computer program product recorded on a computer readable medium for rounding a first two's complement fixed point datum  $X$  represented by a sign bit  $s_i$ ,  $n$  first integer bits, and  $a$  first fractional bits, where  $X$  includes a precision portion including at least the  $n$  first integer bits and  $b$  first fractional bits, and a loss portion including  $(a-b)$  first fractional bits, the computer program product comprising:

a computer readable program code comparing at least a portion of the  $a$  first fractional bits with a preselected threshold value;

if the comparison returns a first result, a computer readable program code adding the sign bit  $s_i$  to the least significant bit of the precision portion of  $X$ ;

if the comparison returns a second result, a computer readable program code adding a most significant bit of the loss portion of  $X$  to the least significant bit of the precision portion of  $X$ ; and

a computer readable program code returning  $\hat{X}$  based on the addition calculation, wherein  $\hat{X}$  includes at least  $n$  second integer bits and  $b$  second fractional bits.

12. (New) The computer program product of claim 11, wherein  $\hat{X}$  further includes a sign bit  $s_o$ .

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13. (New) The computer program product of claim 11, wherein the computer readable program code for the comparing includes computer readable program code comparing the loss portion of  $X$  with the preselected threshold value.

14. (New) The computer program product of claim 13, wherein the comparison returns the first result if the most significant bit of the loss portion has a value of "1" and any subsequent bits in the loss portion has a value of "0."

15. (New) The computer program product of claim 11, wherein the first result indicates that the compared first fractional bits equal the threshold value.

16. (New) The computer program product of claim 11, wherein the second result indicates that the compared first fractional bits do not equal the threshold value.

17. (New) The computer program product of claim 11, wherein  $a > b$ .

18. (New) A rounding device for rounding a first two's complement fixed point datum  $X$  represented by a sign bit  $s_i$ ,  $n$  first integer bits, and  $a$  first fractional bits, where  $X$  includes a precision portion including at least the  $n$  first integer bits and  $b$  first fractional bits, and a loss portion including  $(a-b)$  first fractional bits, the rounding device comprising:

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means for comparing at least a portion of the **a** first fractional bits with a preselected threshold value;

if the comparison returns a first result, means for adding the sign bit **s<sub>i</sub>** to the least significant bit of the precision portion of **X**;

if the comparison returns a second result, means for adding a most significant bit of the loss portion of **X** to the least significant bit of the precision portion of **X**; and

means for returning  $\hat{X}$  based on the addition calculation, wherein  $\hat{X}$  includes at least **n** second integer bits and **b** second fractional bits.

19. (New) The rounding device of claim 18, wherein  $\hat{X}$  further includes a sign bit **s<sub>o</sub>**.

20. (New) The rounding device of claim 18, wherein the means for comparing includes means for comparing the loss portion of **X** with the preselected threshold value.

21. (New) The rounding device of claim 20, wherein the comparison returns the first result if the most significant bit of the loss portion has a value of "1" and any subsequent bits in the loss portion has a value of "0."

22. (New) The rounding device of claim 18, wherein the first result indicates that the compared first fractional bits equal the threshold value.

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23. (New) The rounding device of claim 18, wherein the second result indicates that the compared first fractional bits do not equal the threshold value.

24. (New) The rounding device of claim 18, wherein  $s_i$  indicates whether  $X$  is a positive or a negative number, and wherein  $X$  being a positive number is substantially equiprobable to  $X$  being a negative number.

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**Amendments to the Drawings:**

The attached sheet of drawings includes changes to FIG 15. This sheet, which includes Fig. 15, replaces the original sheet including Fig. 15.

Attachment: Replacement Sheet